Heartwater survey on changes and causes

10/20/2017

A Survey of veterinary and farmer experiences and opinions on heartwater incidence, distribution and associated factors in domestic ruminants in South Africa

Industry Sector: Cattle And Small Stock

Research Focus Area: Animal Health And Welfare

Research Institute: Faculty Of Veterinary Science, University Of Pretoria Department Of Production Animal Studies

Researcher: Prof Gareth Bath ECSRHM

The Research Team

Title	Initials	Surname	Qualification
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Prof	G	Fosgate	PhD

Year Of Completion : 2017

Aims Of The Project

- To establish the extent and incidence of HW by a structured questionnaire sent to farmers and veterinarians in heartwater areas
- To establish changes that may have occurred in these areas
- To identify possible reasons for the changes observed.
- To make recommendations for further action

Executive Summary

The Questionnaire Survey achieved the aims set out for the project. Sample sizes, structure, demographics, geographic distribution and experience profiles of both Veterinary and Farmer groups were adequate for gathering useful data and for conclusions to be drawn.

There appears to be epidemiologically significant change in the spatial distribution of heartwater in many areas, with serious expansion in some, of up to 150 kilometres, and 48% of veterinarians and 42% of farmers reported seeing increases in the number of farms affected by heartwater. The disease is also increasing in incidence and severity judging by the number of cases seen, increases in occurrence observed and also some indication that there is an increased risk of heartwater in more months of the year than in the past.

Climate change as a causative factor, indicated by observations of increased average temperatures, milder frosts, less rain and shorter rainy seasons, was identified by the majority of farmers but not by as many veterinarians. Respondents in both groups considered vegetation change an important factor. Increasing wildlife, especially antelope, was seen as a major factor by most veterinarians and also many farmers. Both groups identified the movement of livestock and wildlife as an increasingly important factor that must be seen as of major concern for both industries since it leads to the avoidable spread of many diseases apart from heartwater. Movement controls must be reinstated and reinforced by vigorously enforced legislation.

The use of the heartwater ‘vaccine’ is either unchanged or in decline and is apparently causing an increasing reliance on dipping and block treatments. Farmers reported mainly an increase in tick control by dipping and rated this as a very important factor in the management of heartwater; the veterinarians rated it lower. Control achieved by routine, regular block treatments of entire flocks or herds was also seen as a major factor and as increasing in use for both respondent groups, each giving it a high ranking. Relying on intensive tick control and ongoing block treatments leads to loss of efficacy in key acaricides and antibiotics and has very serious implications and consequences for the control of many diseases and parasites of livestock. The lack of a commercially available, safe, effective, practical and affordable true vaccine for the protection of ruminant livestock against heartwater should be of the absolute highest concern and priority. After decades of trials, OVI researchers have developed a very promising candidate vaccine, yet its further development to the commercial stage appears not to be receiving the urgency and attention needed.

Diagnosis of heartwater in post mortem cases is accurate and reliable if backed by appropriate histopathological staining and examination, but far too few farmers have their suspicions confirmed by laboratory tests. This leads to a danger of widespread misdiagnosis and the disease being potentially either under- or over-diagnosed. The problem extends to clinical cases especially, where diagnosis rests mainly on a few ‘typical’ signs. The presence of atypical forms of heartwater further complicates the problem.

Popular Article

Is Heartwater Spreading And Becoming Worse, And Why?

A survey of farmers and veterinarians in heartwater-prone areas of South Africa indicates that the disease is expanding in geographic area and increasing in severity. What are the possible reasons for this, what has changed in these areas, and what should be done to limit the impact of a worsening situation? The Heartwater Survey was undertaken by staff of the Faculty of Veterinary Science at Onderstepoort, and generously funded by the financial subvention of RMRD – SA.

A representative sample of veterinarians and farmers with adequate experience in areas where heartwater is a problem agreed to take part in the survey. The survey took the form of a structured, measureable and analysable set of questions in a standard questionnaire. The questionnaire was designed to allow comparisons to be made between the two groups, who were for the most part asked the same or similar questions. The responses of these two groups gave an insight into the current heartwater situation as it is experienced by the farmers and veterinarians in the heartwater areas, and shed some light on the importance of factors believed to be involved in the expansion of areas affected by heartwater and in the changes of its severity.

It was deduced from the responses of both groups that the disease is expanding its range in many areas, and alarmingly so – by an average of perhaps 60km and as much as 150 kilometres in some regions. The reports by both vets and farmers indicated that an increasing number of farms are becoming affected by heartwater, confirming that the disease appears to be spreading. It was also evident that annual losses caused by heartwater can be very high on some farms unless the disease is suppressed by unsustainable practices like intensive dipping or repeated blocking of entire herds and flocks with tetracycline antibiotics. Both groups also reported that the number of cases of heartwater is rising.

Several factors that were thought to be responsible for these changes were identified by the two groups, although they did not always agree on the relative importance of these factors. Climate change, evidenced by higher than average temperatures, milder frosts, lower rainfall and shorter rainy seasons, was seen as a major causative factor by most farmers but considered to be of less significance by the veterinarians. Both groups saw a change in vegetation as an important factor but more so by the vets, who also rated the role of increased wildlife and the movement of antelope as a major factor, more so than the opinion of the farmers. The groups were, however, in agreement about the important role played by the movement of livestock in the potential to increase the areas affected by heartwater.

The survey revealed that the use of the heartwater “vaccine” was stagnant or in decline, which is not surprising in view of the many difficulties encountered in its use, the risks and dangers inherent to it, and the uncertainties around its efficacy. Unfortunately this reluctance to use the vaccine has evidently led to an increasing use of frequent, suppressive tick control or reliance on regular blocking treatments for heartwater for entire herds or flocks. Neither of these control measures are sustainable in the long run, and are almost certain to hasten the onset and rapid development of drug resistance in the bont tick and the heartwater organism. It was also clear from the survey that the diagnosis and treatment of heartwater relies far too heavily on the clinical signs or symptoms seen, especially with the farmers, leading to the dangers of misdiagnosis.

In conclusion, the survey revealed that heartwater is increasing in both its geographic extent and its severity, at least in some areas, and that a number of factors appear to be involved in causing these changes. Chief of these were climate, vegetation, and wildlife and livestock movements. The role of static or declining vaccine usage, leading to an increased reliance on intensive tick control, or alternately the widespread use of whole herd blocking with tetracycline antibiotics was also revealed by the responses of both groups.

The most pressing need now to bring about satisfactory heartwater control is the rapid and prioritised development of a commercial vaccine by OBP that is safe, effective, practical, easy to use and affordable. This development can be based on the very promising candidate vaccine developed by OVI. Ensuring that the movement of both wildlife and livestock is properly controlled to try to reduce the spread of the disease is another priority requiring urgent attention.

Please contact the Primary Researcher if you need a copy of the comprehensive report of this project – Gareth Bath on gfbath@gmail.com

Animal Health and Welfare, Cattle and Small Stock

2017, Bath, Paper, UP

‹ Improved red meat marketing in South Africa

› Nutrient content of lamb and mutton offal

DEADLINES for RESEARCHERS 2021

Proposals for 2021: TBC
Progress reports: 28 Jan 21
Final reports: 29 Jan 21 Final includes comprehensive report and popular article

COMMITEE MEETINGS for 2021

RMRDSA CSS Planning - TBC
Project Committee - TBC
Pork Planning - TBC

Calendar

<		Apr 2021				>
Sun	Mon	Tue	Wed	Tur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

PORK Priority Areas

Cattle & Small Stock Programmes

1 Sustainable natural resource utilisation

2 Improvement of Livestock production and forage

3 Management of agricultural risk to create a resilient Red Meat sector

4 Sustainable health and welfare for the Red Meat sector

5 Enhancement of production and processing of Animal Products

6 Consumer and market development of the Red Meat sector

7 Commercialisation of the emerging sector